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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/505,155	02/28/2005	Jacobus Antonius Loontjens	4662-289	5708
23117 7590 02/13/2008 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			EXAMINER GILLESPIE, BENJAMIN	
			ART UNIT 1796	PAPER NUMBER
			MAIL DATE 02/13/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/505,155

Applicant(s)

LOONTJENS ET AL.

Examiner

BENJAMIN J. GILLESPIE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelb, II et al ('094), herein referred to as: Nelb et al in view of Kolouch et al ('167). Patentees disclose a process for preparing high molecular weight linear polyamides, copolyamides, or polyester-amide block copolymers by melt-mixing a lower molecular weight polyamide, copolyamide, or polyester-amide with a blocked or unblocked aliphatic diisocyanates at a temperature between 150°C and 350°C (Abstract; col 2 lines 36-51; col 3 lines 49-42; col 4 lines 30-34). In particular the blocking agents consist of phenol, lactam, alcohol, or oximes, and resulting diisocyanate is present in an amount between 0.1 to 10% by weight based on low molecular weight polymer (Col 3 lines 43-47; col 4 lines 59-62).
2. The melt mixing is done in twin screw extruder, and although Nelb et al fail to specify a reaction time less than two minutes, column 9 lines 29-31 explain that maximum viscosity is obtained after only four minutes, therefore the position is taken that a permanent increase in molecular weight, i.e. chemical reaction between isocyanate group and isocyanate-reactive group, occurs within two minutes (Col 9 lines 29-31). Nelb et al fails however to teach polyamides, copolyamides, or polyester-amide block copolymers that have hydroxyl groups as their isocyanate-reactive species.

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3. Kolouch et al also teach a method for producing high molecular weight linear polyesters by melt-mixing a lower molecular weight polyamide, copolyamide, or polyester-amide with aliphatic diisocyanates, wherein the diisocyanate and low molecular weight polymer are melt-mixed and reacted in a twin-screw extruder at a temperature between 255°C and 320°C (Col 1 lines 35-69). Furthermore, patentees teach that the low molecular weight polyesters can have either carboxyl or hydroxyl groups as the isocyanate-reactive species (Col 2 lines 29-33).

4. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the carboxyl-functional polymers of Nelb et al for hydroxyl functional polymers based on the motivation that Kolouch et al they are both suitable for producing high molecular weight polyesters based on the same diisocyanates and an analogous processing method. Furthermore, it is prima facie obvious to combine individually old ingredients for their known additive function, i.e. it is obvious to add a known ingredient for its known function; *In re Linder* 173 USPQ 356; *In re Dial et al* 140 USPQ 244.

5. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kolouch et al in view of Nelb, II et al ('094), herein referred to as: Nelb et al. Kolouch et al teach a method for producing a high molecular weight linear polyester by melt-mixing a lower molecular weight polyester with an aliphatic diisocyanates in a twin screw extruder, wherein the diisocyanate is present in an amount ranging from 0.6-1.1% based on the low molecular weight polyester (Col 1 lines 35-68; col 3 lines 37-42). In particular the low molecular weight polyester may be hydroxyl or carboxyl functional, and the melt-mixing takes place at a temperature between 255°C and 320°C (Col 2 lines 23-32). However, patentees fail to teach blocked diisocyanates, or a permanent increase in molecular weight within 2 minutes of melt-mixing.

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6. Nelb et al teach a method for increasing the molecular weight of low molecular weight polyester compounds, by reacting low molecular weight carboxyl-functional polyester with blocked diisocyanates in a twin screw extruder, wherein the maximum viscosity is reached within 4 minutes, taken to satisfy the limitation of claim 5. It is commonly known in the art to employ blocked diisocyanates in order to improve the shelf-life of a two component polyurethane mixture, however blocking agents are usually not preferred because they release hazardous by-products during unblocking.

7. Nevertheless it would have been obvious to include blocked diisocyanates and combine the method of by Nelb et al based on the motivation that the blocking agents improve the shelf life of the unreacted composition, the reaction temperatures of Kolouch et al coincide with the temperatures of Nelb et al; which shows the polymer of Kolouch et al can be heated to the desired deblocking temperature of said diisocyanate, and finally Nelb et al specifically teach that the twin screw extruder vents any evolved blocking agents, thereby allowing the discharge of said hazardous by-products (Col 5 lines 40-46). Therefore, by incorporating the method of Nelb et al in Kolouch et al, one would reasonably expect that the polyester would exhibit a permanent increase in molecular weight based on the motivation that Nelb et al teach the maximum viscosity is obtained in only 4 minutes.

Response to Arguments

Applicant's arguments, filed 12/7/2007, with respect to the rejection of claims 1-6 under 35 U.S.C. 103(a) as being unpatentable over Perego et al ('025) in view of Nelb, II et al ('094), have been fully considered and are persuasive. The rejection has been withdrawn.

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8. Applicant's arguments filed 12/7/2007, with respect to the rejection of claims 1-6 under 35 U.S.C. 103(a) as being unpatentable over Nelb, II et al ('094) in view of Kolouch et al ('167), and Kolouch et al ('167) in view of Nelb, II et al ('094) have been fully considered but they are not persuasive.

9. Applicants argue that claims 1-6 are patentable because Kolouch et al are not drawn to blocked polyisocyanates but instead directed away from such compound based on column 3 lines 52-55, which states polyisocyanates that exhibit reduced reactivity are undesirable because the reaction system requires a greater amount of said polyisocyanate. Applicants go on to state that this results in undesirable consequences, such as a greater amount of branching in the final polymer.

10. Firstly, the examiner would like to point out that the teaching on column 3 lines 52-55 is directed towards the reactivity of aliphatic and aromatic polyisocyanates, not blocked and unblocked isocyanates. Applicants appear to be equating reactivity of unmasked aliphatic polyisocyanates to masked aromatic polyisocyanates; this is neither proper nor persuasive. It is noted that masked polyisocyanates are stable and non-reactive under certain conditions, i.e. low temperature or without catalyst, however upon reaching the required reaction conditions, said masked polyisocyanates revert back to their original unmasked state and exhibit their original reactivity. Furthermore said conditions are commonly known in the art depending on what the desired final product is, as discussed by Nelb et al (Nelb et al; col 3 lines 37-43, and 49-52)

11. Furthermore, as stated in the rejection set forth above, Kolouch et al teach reaction temperatures that coincide with the unblocking temperatures of Nelb et al, therefore one of

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ordinary skill would understand that the masked polyisocyanates of Nelb et al would exhibit sufficient reactivity one returned to their original unmasked reactive state.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BENJAMIN J. GILLESPIE whose telephone number is (571)272-2472. The examiner can normally be reached on 8am-5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

B. Gillespie



**RABON SERGENT
PRIMARY EXAMINER**